PTO 1542
(4-85)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

RUSH 87246

ONLINE SEARCH REQUEST FORM

****

USER Irene Marx SERIAL NUMBER 10/033197

ART UNIT 1651 PHONE 308-2922 DATE 2/21/03

Please give a detailed statement of requirements. Describe as specifically as possible the subject matter to be searched. Define any terms that may have special meaning. Give examples or relevant citations, authors, or keywords, if known.

You may include a copy of the broadest and or relevant claim(s).

Please search inventors

reaction with whole cell or enzyme

- Bacillus
  Kluyvera or
  Escherichia

Point of Contact:
Susan Hanley
Technical Info. Specialist
CM1 6B05 Tel: 305-4053

****

STAFF USE ONLY

Hanley

COMPLETED 2/25
SEARCHER 2/24
ONLINE TIME _____ TOTAL TIME _____
(in minutes)
NO. OF DATABASES _____

SYSTEMS
___ CAS ONLINE
___ DARC/QUESTEL
___ DIALOG
___ SDC
___ OTHER

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=> d his

     (FILE 'HOME' ENTERED AT 09:49:07 ON 25 FEB 2003)

     FILE 'HCAPLUS' ENTERED AT 09:49:17 ON 25 FEB 2003
L1           734 S JOSHI R?/AU
L2            16 S PRABHUNE A?/AU
L3           178 S GURJAR M?/AU
L4           927 S L1-3
L5             0 S L4 AND ?HEPTANON?
L6             1 S L4 AND AZABI?
L7        277988 S BACILLUS OR KLYUVERA OR ESCHERICHI?
L8            11 S L4 AND L7
L9             9 S L4 AND ?BICYCLO?
L10           35 S L4 AND OPTICAL?
L11            4 S L10 AND (L7 OR CELL? OR ?ENZYM?)
L12            3 S L11 NOT MOLYBDENUM/TI

     FILE 'LREGISTRY' ENTERED AT 09:59:16 ON 25 FEB 2003
L13              STR

     FILE 'REGISTRY' ENTERED AT 10:04:02 ON 25 FEB 2003
L14            9 S L13
L15          349 S L13 FUL
                 SAVE L15 TEMP MAR197P/A
L16           23 S L15 AND NR=2 AND O=1 AND N=1 AND C=6
L17            9 S L16 NOT X/ELS
L18            7 S L17 NOT PMS/CI
L19            0 S L17 AND "R"
L20            2 S L17 AND "(1R)"
L21            2 S L18 AND " (1S,4R)"
L22            3 S L18 NOT L20-21
L23          326 S L15 NOT L16
L24          246 S L23 NOT (P OR SI OR S)/ELS
L25          216 S L24 NOT (SE/ELS OR N3C2/ESS OR OC2/ESS)
L26          213 S L25 NOT ("OCTAN-8-ONE" OR OC5-C6/ES)
L27          212 S L26 NOT PMS/CI

     FILE 'HCAPLUS' ENTERED AT 10:17:19 ON 25 FEB 2003
L28           57 S L20
L29           18 S L28(L)PREP/RL
L30           34 S L21
L31           13 S L30(L)PREP/RL
L32           19 S L29 OR L31
L33          129 S L27
L34           99 S L33(L)(RACT OR RCT)/RL
L35            9 S L34 AND L32
L36            4 S L35 AND (?ENZYM? OR CELL OR MICROORG? OR L7)
L37           15 S L32 NOT L36
L38            5 S L37 AND (?ENZYM? OR CELL OR MICROORG? OR L7)
L39            5 S L38 NOT L36

     FILE 'REGISTRY' ENTERED AT 10:48:02 ON 25 FEB 2003
L40           57 S L27 AND "(1R"
L41           28 S L27 AND "(1S"

     FILE 'HCAPLUS' ENTERED AT 10:50:26 ON 25 FEB 2003
L42           41 S L40
L43           35 S L42(L)PREP/RL
L44           21 S L41
```

inventor search

1 cite

11 cites

9 cites

3 cites

claimed product species

L20-21

possible reactants for

preparations for claimed productspecies

" " " " "

reactants

99 cites for L27 cpds as reactants

4 cites

5 cites

optically active products, but not claimed product species

```
L45          16 S L44(L)(RACT OR RCT)/RL
L46           8 S L44-45 AND  (?ENZYM? OR CELL OR MICROORG? OR L7)
L47           6 S L46 NOT (L39 OR L36)
L48           3 S L47 AND (STEREOSPECIF? OR ENANTIOSPEC? OR RACEM? OR RESOLV? O

     FILE 'CASREACT' ENTERED AT 10:59:59 ON 25 FEB 2003
L49             STR L13
L50           1 S L49
L51          67 S L49 FUL
L52           8 S L51 AND (BIOTRANS? OR BIOCAT? OR ?ENZYM? OR (WHOLE CELL?) OR
L53           4 S (130:208877 OR  135:137223 OR  115:49382 OR 114:7049)/AN
L54           4 S L52 NOT L53
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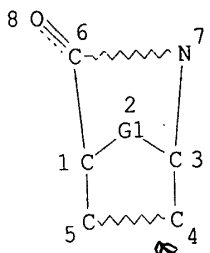
3 cites

← citations from L36 or L39 in the APLUS

4 cites from cas react

=> d que l32
L13 STR



can be fused

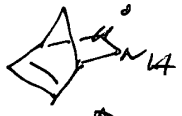
VAR G1=CH/O
NODE ATTRIBUTES:
CONNECT IS E3 RC AT 1
CONNECT IS E3 RC AT 3
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L15	349	SEA FILE=REGISTRY	SSS FUL	L13	
L16	23	SEA FILE=REGISTRY AND C=6	ABB=ON	PLU=ON	L15 AND NR=2 AND O=1 AND N=1
L17	9	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L16 NOT X/ELS
L18	7	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L17 NOT PMS/CI
L20	2	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L17 AND "(1R)"
L21	2	SEA FILE=REGISTRY	ABB=ON	PLU=ON	L18 AND " (1S,4R)"
L28	57	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L20
L29	18	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L28(L)PREP/RL
L30	34	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L21
L31	13	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L30(L)PREP/RL
L32	19	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L29 OR L31

claimed product species



19 cites for prep of L20-21 cpds

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=> d que 146
L7        277988 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BACILLUS OR KLYUVERA OR
                 ESCHERICHI?
L13               STR
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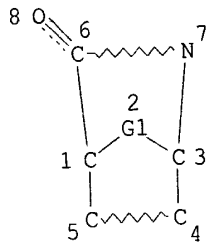


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VAR G1=CH/O
NODE ATTRIBUTES:
CONNECT IS E3  RC AT   1
CONNECT IS E3  RC AT   3
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   8

STEREO ATTRIBUTES: NONE
L15          349 SEA FILE=REGISTRY SSS FUL L13
L16           23 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 AND NR=2 AND O=1 AND N=1
                 AND C=6
L23          326 SEA FILE=REGISTRY ABB=ON  PLU=ON  L15 NOT L16
L24          246 SEA FILE=REGISTRY ABB=ON  PLU=ON  L23 NOT (P OR SI OR S)/ELS
L25          216 SEA FILE=REGISTRY ABB=ON  PLU=ON  L24 NOT (SE/ELS OR N3C2/ESS
                 OR OC2/ESS)
L26          213 SEA FILE=REGISTRY ABB=ON  PLU=ON  L25 NOT ("OCTAN-8-ONE" OR
                 OC5-C6/ES)
L27          212 SEA FILE=REGISTRY ABB=ON  PLU=ON  L26 NOT PMS/CI
L41           28 SEA FILE=REGISTRY ABB=ON  PLU=ON  L27 AND "(1S"
L44           21 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L41
L45           16 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L44(L)(RACT OR RCT)/RL
L46            8 SEA FILE=HCAPLUS ABB=ON   PLU=ON  (L44 OR L45) AND  (?ENZYM? OR
                 CELL OR MICROORG? OR L7)
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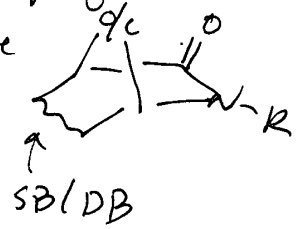
8 cites for prep of optically active

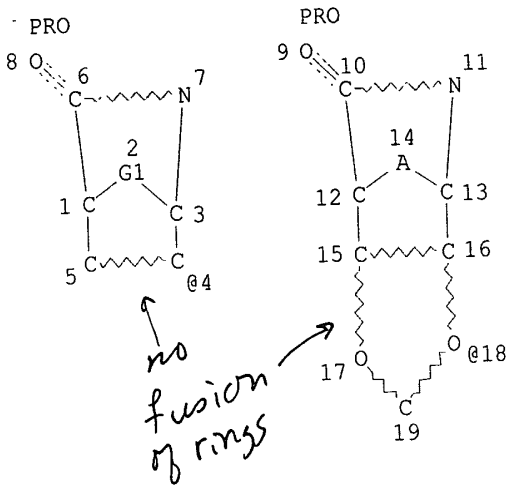


SB/DB

STR for CAS REACT

=> d que l54
L7 277988 SEA FILE=HCAPLUS ABB=ON PLU=ON BACILLUS OR KLYUVERA OR ESCHERICHI?

L49 STR



no fusion of rings

G2 20

looking for either version of

5B/OB

VAR G1=CH/O
VAR G2=4/18
NODE ATTRIBUTES:
CONNECT IS E3 RC AT 1
CONNECT IS E3 RC AT 3
CONNECT IS E3 RC AT 12
CONNECT IS E3 RC AT 13
DEFAULT MLEVEL IS ATOM
MLEVEL IS CLASS AT 14
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS UNLIMITED AT 14

GRAPH ATTRIBUTES:
RSPEC 6 10
NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE
L51 67 SEA FILE=CASREACT SSS FUL L49 (556 REACTIONS)
L52 8 SEA FILE=CASREACT ABB=ON PLU=ON L51 AND (BIOTRANS? OR BIOCAT? OR ?ENZYM? OR (WHOLE CELL?) OR MICROB? OR L7)
L53 4 SEA FILE=CASREACT ABB=ON PLU=ON (130:208877 OR 135:137223 OR 115:49382 OR 114:7049)/AN
L54 4 SEA FILE=CASREACT ABB=ON PLU=ON L52 NOT L53

4 cites

prep of genus

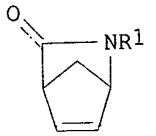
=> d ibib abs hitstr 1

L48 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:53929 HCAPLUS
DOCUMENT NUMBER: 132:107046
TITLE: Preparation of optically active azabicycloheptenone derivatives by **stereospecific enzymic** hydrolysis
INVENTOR(S): Bernegger-Egli, Christine; Brux, Frank; Roduit, Jean Paul; Werbitzky, Oleg; Guggisberg, Yves
PATENT ASSIGNEE(S): Lonza A.-G., Switz.
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000003032	A1	20000120	WO 1999-EP4814	19990708
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9952803	A1	20000201	AU 1999-52803	19990708
EP 1095160	A1	20010502	EP 1999-938217	19990708
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002520027	T2	20020709	JP 2000-559252	19990708
NO 2001000121	A	20010108	NO 2001-121	20010108

PRIORITY APPLN. INFO.:
EP 1998-112719 A 19980709
EP 1998-123949 A 19981217
WO 1999-EP4814 W 19990708

OTHER SOURCE(S): MARPAT 132:107046
GI



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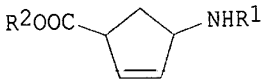
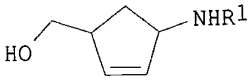


II



III

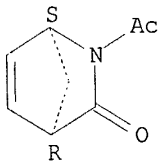
AB The invention relates to a biotechnol. method for producing optically active compds. of general formulas (I) and (II), wherein R1 represents acyl or acyloxy, and R2 represents H or C1-C10 alkyl, by reaction of the **racemic** lactam using a hydrolase in the presence of a nucleophile and in the presence of a base in a const. pH range. The invention also relates to the subsequent conversion of compd. I into the optically active 1-amino-4-(hydroxymethyl)-2-cyclopentene of formula (III). **Racemic** 2-acetyl-2-azabicyclo[2.2.1]hept-5-en-3-one 419.25 mL was dild. with water 60 mL and a com. subtilisin soln. 31.5 mL. This soln. was brought to pH 7.5 and incubated at 30.degree. with vigorous stirring. After 45 h (1R,4S)-2-Acetyl-2-azabicyclo[2.2.1]hept-5-en-3-one with an ee 99% was obtained. Final yield of purified product was 31%.

IT **200002-40-0P**
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepn. of optically active azabicycloheptenone derivs. by **stereospecific enzymic** hydrolysis)

RN 200002-40-0 HCAPLUS

CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-acetyl-, (1S,4R)- (9CI) (CA INDEX NAME)

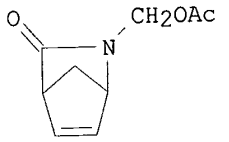
Absolute stereochemistry.



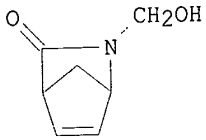
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d ibib abs hitstr 2

L48 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:668209 HCAPLUS
DOCUMENT NUMBER: 130:13892
TITLE: Lipase-catalyzed asymmetric **resolution** of 2-azabicyclo[2.2.1]hept-5-en-3-ones
AUTHOR(S): Iwasa, Kazuto; Nakano, Hiroto; Okuyama, Yuko; Hongo, Hiroshi
CORPORATE SOURCE: Tohoku Coll. Pharm., Sendai, 981-8558, Japan
SOURCE: Annual Report of the Tohoku College of Pharmacy (1997), 44, 111-114
CODEN: TYKNAQ; ISSN: 0495-7342
PUBLISHER: Tohoku Yakka Daigaku
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
GI



I



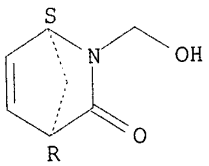
II

AB (-)-2-Acetoxymethyl- and (+)-2-hydroxymethyl-2-azabicyclo[2.2.1]hept-5-en-3-ones [(1R,4S)-(-)-I and (1S,4R)-(+)-II] were obtained in 97 and 91% ee, resp., by the enantioselective transesterification of (.+-.)-II with vinyl acetate using lipase AH (III). The III-catalyzed hydrolysis of (.+-.)-I gave (1R,4S)-(-)-II and (1S,4R)-(+)-I in 77 and 80% ee, resp.

IT **157810-20-3P 183074-63-7P**
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(lipase-catalyzed asym. **resoln.** of 2-azabicyclo[2.2.1]hept-5-en-3-ones)

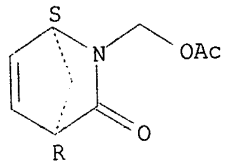
RN 157810-20-3 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)-, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



RN 183074-63-7 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-[(acetyloxy)methyl]-, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).


S
N
OAc
O
R

=> d ibib abs hitstr 3

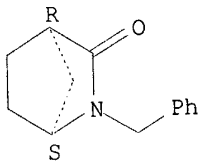
L48 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1986:438969 HCAPLUS
DOCUMENT NUMBER: 105:38969
TITLE: Biohydroxylation of non-activated carbon atoms by the fungus Beauveria sulfurescens
AUTHOR(S): Furstoss, R.; Archelas, A.; Fourneron, J. D.; Vigne, B.
CORPORATE SOURCE: Lab. Chim. Org. Bioorg., Fac. Sci. Luminy, Marseille, 13288/9, Fr.
SOURCE: Org. Synth.: Interdiscip. Challenge, Proc. IUPAC Symp., 5th (1985), Meeting Date 1984, 215-26. Editor(s): Streith, Jacques; Prinzbach, Horst; Schill, Gottfried. Blackwell: Oxford, UK.
CODEN: 54XTAR
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The biohydroxylation of a no. of bridged bicyclic or tricyclic amide-type mols. by the fungus B. sulfurescens (ATCC 7159) was studied. These hydroxylations lead to regio-, stereo-, and sometimes enantioselective functionalization of nonactivated C atoms. The results were analyzed to get some information about the topol. of the **enzyme** active site. A model was proposed which enhances the predictability of these processes.

IT **103065-89-0**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(hydroxylation of, by Beauveria sulfurescens)

RN 103065-89-0 HCAPLUS
CN 2-Azabicyclo[2.2.1]heptan-3-one, 2-(phenylmethyl)-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



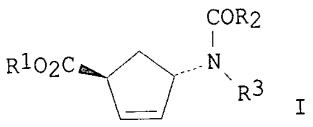
=> d ibib abs fcrdref 1

L54 ANSWER 1 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 133:280647 CASREACT
TITLE: The preparation of trans-4-amino-2-cyclopentene-1-carboxylic acid derivatives
INVENTOR(S): Taylor, Stephen John Clifford; Lloyd, Michael
PATENT ASSIGNEE(S): Chirotech Technology Limited, UK
SOURCE: PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

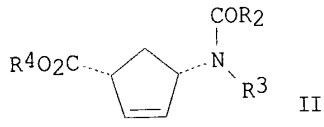
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000058500	A1	20001005	WO 2000-GB1141	20000324
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1165829	A1	20020102	EP 2000-912810	20000324
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRIORITY APPLN. INFO.: GB 1999-7082 19990326
WO 2000-GB1141 20000324

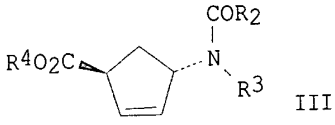
OTHER SOURCE(S): MARPAT 133:280647
GI



I



II

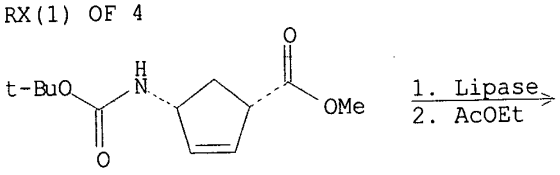


III

AB A process for the prepn. of an enantiomerically enriched trans-1,4-disubstituted 2-cyclopentene of formula (I), substantially free of the corresponding cis isomer, comprises selective hydrolysis of a mixt. of diastereomeric esters (II) and (III) or their opposite enantiomers in the presence of an **enzyme**, wherein R1 is H or alkyl, R2 is alkoxy, alkyl, aryl, or H, R3 is H or any non-interfering org. group, and

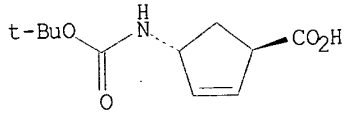
R4 is alkyl.

RX(1) OF 4



1. Lipase
2. AcOEt

(step 1)



REF: PCT Int. Appl., 2000058500, 05 Oct 2000
NOTE: STEREOSELECTIVE , ENZYMATIC REACTION, PHOSPHATE BUFFER USED (PH7)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

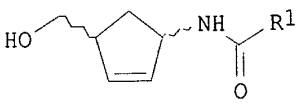
=> d ibib abs fcrdref 2

L54 ANSWER 2 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 128:32314 CASREACT
TITLE: Process for the preparation of amino alcohols and derivatives thereof
INVENTOR(S): Bernegger-Egli, Christine; Birch, Olwen M.; Bossard, Pierre; Brieden, Walter; Brux, Frank; Burgdorf, Knut; Duc, Laurent; Etter, Kay-Sarah; Guggisberg, Ives; Sauter, Martin; Urban, Eva Maria
PATENT ASSIGNEE(S): Lonza A.-G., Switz.; Bernegger-Egli, Christine; Birch, Olwen M.; Bossard, Pierre; Brieden, Walter; Brux, Frank; Burgdorf, Knut; Duc, Laurent
SOURCE: PCT Int. Appl., 68 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9745529	A1	19971204	WO 1997-EP2838	19970530
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2253977	AA	19971204	CA 1997-2253977	19970530
AU 9731705	A1	19980105	AU 1997-31705	19970530
EP 904348	A1	19990331	EP 1997-927092	19970530
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI				
CN 1220695	A	19990623	CN 1997-195182	19970530
JP 2000512488	T2	20000926	JP 1997-541630	19970530
KR 2000016124	A	20000325	KR 1998-709691	19981128
US 6368850	B1	20020409	US 1999-194626	19990521
US 2003008360	A1	20030109	US 2001-992982	20011114
			CH 1996-1359	19960530
			CH 1997-282	19970210
			CH 1997-908	19970418
			WO 1997-EP2838	19970530
			US 1999-194626	19990521

PRIORITY APPLN. INFO.:

OTHER SOURCE(S): MARPAT 128:32314
GI

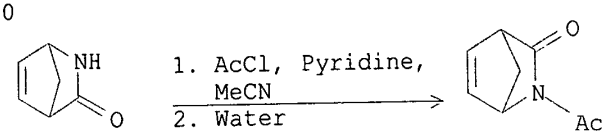


I

AB The invention relates to novel microorganisms which are capable of utilizing cyclopentene derivs. of the general formula (I), in which R1 is

C1-C4-alkyl, C1-C4-alkoxy, aryl or aryloxy, as the only N source, as the only C source or as the only C and O source. The invention also relates to novel **enzymes** which hydrolyze the cyclopentene derivs. of the general formula I. The invention also relates to a novel process for the prepn. of (1R,4S) or (1S,4R)-1-amino-4(hydroxymethyl)-2-cyclopentene and/or of a (1S,4R) or (1R,4S)-amino alc. deriv. in which R1 has the above meaning.

RX(1) OF 10



(step 1) 71%

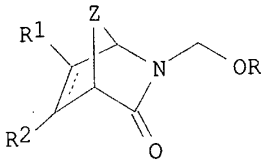
REF: PCT Int. Appl., 9745529, 04 Dec 1997
NOTE: OTHER ACETYL-DERIVED OR HIGHER ALKYL DERIVS. SIMILARLY PREPD.

=> d ibib abs fcrdref 3

L54 ANSWER 3 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 126:185991 CASREACT
TITLE: Preparation of 2-(hydroxy- or acyloxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-ones and analogs
INVENTOR(S): Petre, Dominique; Darnand, Eliane; Marseigne, Isabelle; Leon, Patrick; Botannet, Danielle
PATENT ASSIGNEE(S): Rhone-Poulenc Rorer Pharmaceuticals Inc., USA; Petre, Dominique; Darnand, Eliane; Marseigne, Isabelle; Leon, Patrick; Botannet, Danielle
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9703053	A1	19970130	WO 1996-US11579	19960710
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
AU 9664898	A1	19970210	AU 1996-64898	19960610
PRIORITY APPLN. INFO.:			US 1995-499959	19950710
			WO 1996-US11579	19960710

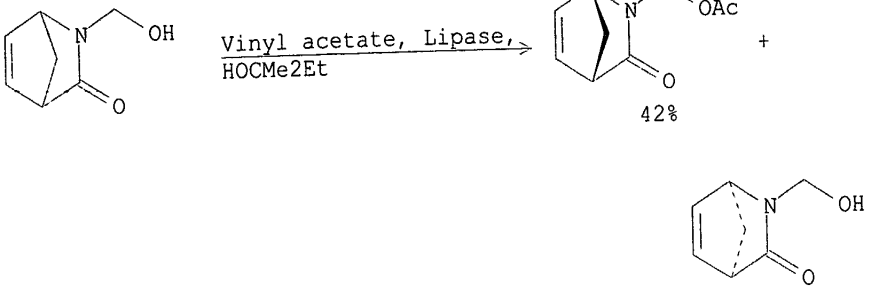
OTHER SOURCE(S): MARPAT 126:185991
GI



I

AB Title compds. [I; R = H or acyl; R1,R2 = H or substituent; Z = O, S, OCH2, (un)substituted alkylene, etc.; dashed line = optional bond] were prepd. Thus, 2-azabicyclo[2.2.1]hept-5-en-3-one was treated with polyacetal to give I (R = H, R1 = R2 = H, Z = CH2, dashed line = bond).

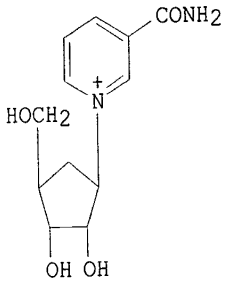
RX(1) OF 1



REF: PCT Int. Appl., 9703053, 30 Jan 1997
NOTE: biotransformation, enzymic, lipase PS (Amano)

=> d ibib abs fcrdref 4

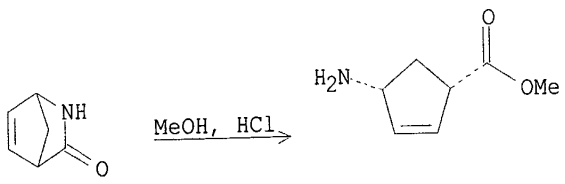
L54 ANSWER 4 OF 4 CASREACT COPYRIGHT 2003 ACS
ACCESSION NUMBER: 112:217364 CASREACT
TITLE: Synthesis of the two enantiomers of the carbocyclic analog of nicotinamide ribose and analysis of their biological properties
AUTHOR(S): Ikbal, Mohamed; Cerceau, Claude; Le Goffic, Francois; Sicsic, Sames
CORPORATE SOURCE: CERCOA, CNRS, Thiais, 94320, Fr.
SOURCE: European Journal of Medicinal Chemistry (1989), 24(4), 415-20
CODEN: EJMCA5; ISSN: 0223-5234
DOCUMENT TYPE: Journal
LANGUAGE: French
GI



I

AB Enantiomers of the carbocyclic analog of nicotinamide ribose I were prepd. via an **enzymic** resoln. of the precursor (.+-.)-II using pig liver esterase. (-)-I possessed good and highly specific bactericidal and fungicidal activities. In vivo competition expts. between (-)-I and intermediate mols. of the pyridine nucleotide cycle along with its inhibitory behavior against 2 key **enzymes** of the NAD+ metab. were performed and suggested that the target of (-)-I could be one of the **enzymes** involved in NAD+ metab.

RX(1) OF 36



HCl

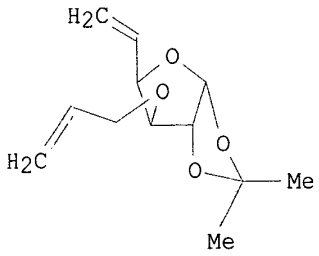
REF: European Journal of Medicinal Chemistry, 24(4), 415-20; 1989

Inv. Search

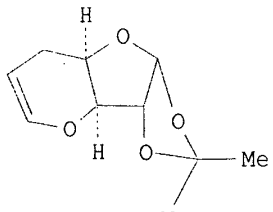
MARX 10/033,197

=> d ibib abs 19 1-9

L9 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:776660 HCAPLUS
DOCUMENT NUMBER: 132:166407
TITLE: Synthesis of (4R)-4-benzyloxycyclopent-2-en-1-one and 2,7-**dioxabicyclo**[4.3.0]non-4-enes by ring closing metathesis of carbohydrate precursors
AUTHOR(S): **Gurjar, Mukund K.**; Murugaiah, Andappan M. S.; Cherian, Joseph; Chorghade, Mukund S.
CORPORATE SOURCE: National Chemical Laboratory, Pune, 411 008, India
SOURCE: Carbohydrate Letters (1999), 3(5), 343-348
CODEN: CLETEC; ISSN: 1073-5070
PUBLISHER: Harwood Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 132:166407
GI



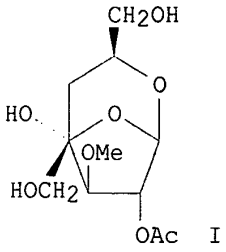
I



II

AB Ring closing metathesis of suitably substituted glycoside dienes, e.g. I, leads to cyclopentenones and bicyclic ethers, e.g. II.
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

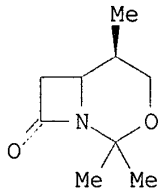
L9 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:7823 HCAPLUS
DOCUMENT NUMBER: 122:133601
TITLE: Zaragozic acid A: interesting observations in anhydro-ring formation of densely functionalized carbohydrate templates
AUTHOR(S): **Gurjar, Mukund K.**; Das, Sanjoy K.; Saha, Uttam K.
CORPORATE SOURCE: Indian Inst. Chem. Technol., Hyderabad, 500 007, India
SOURCE: Tetrahedron Letters (1994), 35(14), 2241-4
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB A methodol. which produced highly substituted 1,6-anhydrofuranose deriv., symbolizing 2,8-**dioxobicyclo**[3.2.1]octane I core of zaragozic acid, has been described.

L9 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:655855 HCAPLUS
DOCUMENT NUMBER: 115:255855
TITLE: 1.beta.-Methylthienamycin; some stereocontrolled approaches towards the key intermediate
AUTHOR(S): **Gurjar, Mukund K.**; Bhanu, Manjunath N.; Khare, Vivek B.; Bhandari, Ashok; Deshmukh, Madhusudhan N.; Rao, A. V. Rama
CORPORATE SOURCE: Indian Inst. Chem. Technol., Hyderabad, 500 007, India
SOURCE: Tetrahedron (1991), 47(34), 7117-28
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



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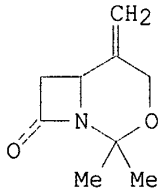

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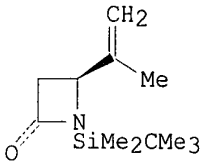
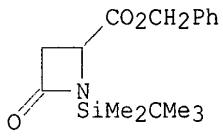


III

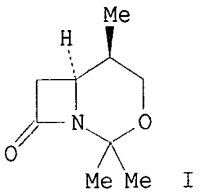


IV

AB The key intermediate I to 1.beta.-methylthienamycin was prepd. either by stereoselective catalytic hydrogenation of **azaoxamethylenebicycloocta none** II or by stereoselective hydroboration-oxidn. of propenylazetidinone III to the hydroxypropylazetidinone followed by isopropylidenation. Both II and III were prepd. from silylazetidinonecarboxylate IV.

L9 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:471210 HCAPLUS
DOCUMENT NUMBER: 115:71210

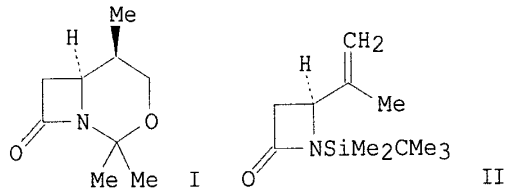
TITLE: A simple route to the key intermediate of 1.beta.-methylthienamycin
AUTHOR(S): Rao, A. V. Rama; **Gurjar, M. K.**; Ashok, B.
CORPORATE SOURCE: Indian Inst. Chem. Technol., Hyderabad, 500 007, India
SOURCE: Tetrahedron: Asymmetry (1991), 2(4), 255-6
CODEN: TASYE3; ISSN: 0957-4166
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB The 1.beta.-methylthrenamycin intermediate I was prepd. from (S)-HOCH2CHMeCO2Me in 6 steps via Wittig reaction and conjugate addn. of PhCH2NH2.

L9 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1990:423439 HCAPLUS
DOCUMENT NUMBER: 113:23439
TITLE: Stereocontrolled approaches to the key intermediate of 1.beta.-methylthienamycin
AUTHOR(S): Rao, A. V. Rama; **Gurjar, M. K.**; Khare, V. B.; Ashok, B.; Deshmukh, M. N.
CORPORATE SOURCE: Indian Inst. Chem. Technol., Hyderabad, 500 007, India
SOURCE: Tetrahedron Letters (1990), 31(2), 271-4
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 113:23439
GI

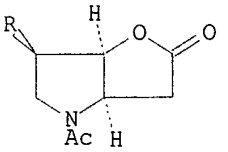


I II

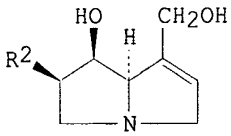
AB The title key intermediate I was prepd. from aspartic acid via the azetidinone II which was converted to I by two different routes.

L9 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:570680 HCAPLUS
DOCUMENT NUMBER: 109:170680
TITLE: Synthesis of N-acetyl derivatives of (1R,5R)-6-aza-2-**oxabicyclo**[3.3.0]octan-3-one and (1S,5R,8R)-8-O-benzyl-6-aza-2-**oxabicyclo**

[3.3.0]octan-3-one from D-glucose
AUTHOR(S): **Gurjar, M. K.**; Patil, V. J.; Pawar, S. M.
CORPORATE SOURCE: Natl. Chem. Lab., Pune, 411 008, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1987), 26B(12), 1115-20
CODEN: IJSBDB; ISSN: 0376-4699
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:170680
GI



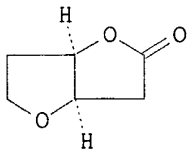
I



II

AB N-Acetyl derivs. of (1R,5R)-6-aza-2-**oxabicyclo**[3.3.0]octan-3-one (I, R = H) and (1S,5R,8R)-8-O-benzyl-6-aza-2-**oxabicyclo**[3.3.0]octan-3-one (I, R = PhCH2O), suitable chiral intermediates for (+)-retronecine (II, R1 = H) and (+)-crotanecine (II, R1 = HO) have been synthesized from D-glucose. The salient features of this approach involves the formation of 6,3-epimino ring followed by deoxygenation of unrequired hydroxyl groups via Barton-McCombie deoxygenation method.

L9 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1988:187074 HCAPLUS
DOCUMENT NUMBER: 108:187074
TITLE: Synthesis of (1R,5R)-2,6-**dioxabicyclo**[3.3.0]octan-3-one from D-glucose
AUTHOR(S): **Gurjar, Mukund K.**; Patil, Vijay J.; Pawar, Sushama M.
CORPORATE SOURCE: Reg. Res. Lab., Hyderabad, 500 007, India
SOURCE: Carbohydrate Research (1987), 165(2), 313-17
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 108:187074
GI

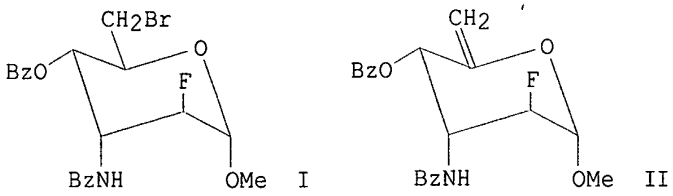


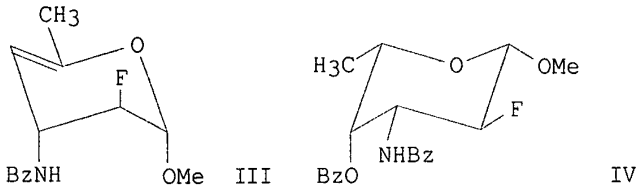
I

AB The title compd. (I) was prepd. enantiospecifically from D-glucose in 11 steps.

L9 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1985:132398 HCAPLUS

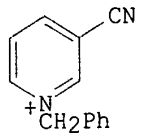
DOCUMENT NUMBER: 102:132398
TITLE: Methyl 3-benzamido-4-O-benzoyl-2,3,6-trideoxy-2-fluoro-.beta.-L-galactopyranoside
AUTHOR(S): **Gurjar, Mukund K.**; Patil, Vijay J.; Yadav, Jhillu S.; Rao, A. V. Rama
CORPORATE SOURCE: Natl. Chem. Lab., Pune, 411008, India
SOURCE: Carbohydrate Research (1984), 135(1), 174-7
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
GI





AB Bromination of Me 3-benzamido-4,6-O-benzylidene-2,3-dideoxy-2-fluoro-.alpha.-D-altropyranoside with N-bromosuccinimide in CCl4 gave 83% 6-bromo deriv. I, which on dehydrobromination with 1,5-**diazabicyclo**[5.4.0]undec-5-ene in (Me2N)3PO for 96 h gave 74% hex-5-enopyranoside II. Hydrogenation of II over Pd/C in AcOEt, followed by silica gel column chromatog. gave 39% hex-4-enopyranoside III (1st fraction) and 41% title galactopyranoside IV (2nd fraction).

L9 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1984:630313 HCAPLUS
DOCUMENT NUMBER: 101:230313
TITLE: Diels-Alder adducts of N-benzyl-1,2- and 1,6-dihydro-3-cyanopyridine with ethyl acrylate
AUTHOR(S): **Joshi, R. A.**; Ponkshe, N. K.; Ravindranathan, T.
CORPORATE SOURCE: Natl. Chem. Lab., Poona City, 411 008, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1984), 23B(3), 263-4
CODEN: IJSBDB; ISSN: 0376-4699
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 101:230313
GI



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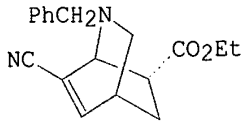
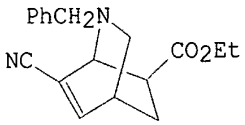
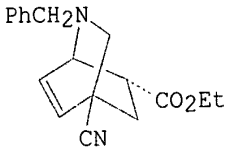


II



III



IV

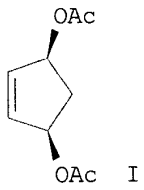
AB Diels-Alder reaction of dihydropyridines from the pyridinium salt (I) with Et acrylate gives higher yields of adduct II than those reported. In addn. the new adducts III and IV, arising from 1,6-dihydro- and 1,2-dihydro-pyridine derivs. resp. were isolated. The structures have been confirmed by NMR spectroscopy.

Inv. search

MARX 10/033,197

=> d ibib abs l12 1-3

L12 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:586535 HCAPLUS
DOCUMENT NUMBER: 133:309696
TITLE: A practical and scalable process for 4-(R)-hydroxycyclopent-2-en-1-(S)-acetate by desymmetrization of meso-cyclopent-2-en-1,4-diacetate catalyzed by Trichosporon beigelii (NCIM 3326), a cheap biocatalyst
AUTHOR(S): Kalkote, U. R.; Ghorpade, S. R.; **Joshi, R. R.**; Ravindranathan, T.; Bastawade, K. B.; Gokhale, D. V.
CORPORATE SOURCE: Division of Organic Chemistry: Technology, National Chemical Laboratory, Pune, 411008, India
SOURCE: Tetrahedron: Asymmetry (2000), 11(14), 2965-2970
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 133:309696
GI



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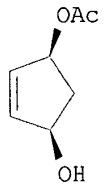


II

AB Various yeast and fungal cultures from NCIM, NCL, Pune, India were screened for the hydrolysis of meso-cyclopentene diacetate I to hydroxycyclopentene acetate II to provide a cheaper and more effective alternative to PLE which is currently being used for the conversion. Yeast cultures of Trichosporon species were identified as having a pro-R preference in the hydrolysis of I; but the enantioselectivity was poor. Hence detailed medium-engineering investigations were made for the hydrolysis of I to II using a culture of Trichosporon beigelii (NCIM 3326) as catalyst. Addn. of 10% vol./vol. ethanol was found to enhance the enantioselectivity of the **enzyme**, affording I of 85% **optical** purity (op) in 83% yield. Further exploration of inherent consecutive kinetic resolns. to the desymmetrization afforded I of >98% ee and in 74% chem. yield.
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:300633 HCAPLUS
DOCUMENT NUMBER: 131:58606
TITLE: Desymmetrization of meso-cyclopenten-cis-1,4-diol to afford **optically** active (1S,3R)-4-cyclopentene-1,3-diol monoacetate by irreversible transesterification using Chirazyme
AUTHOR(S): Ghorpade, Sandeep R.; Kharul, Rajendra K.; **Joshi, Rohini R.**; Kalkote, Uttam R.; Ravindranathan, T.

CORPORATE SOURCE: Division Organic Chemistry, Technology, Natl. Chemical Lab., Pune, 411 008, India
SOURCE: Tetrahedron: Asymmetry (1999), 10(5), 891-899
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The parameter optimization study for the desymmetrization of meso-cyclopentene-1,4-diol through irreversible transesterification using an immobilized lipase from Mucor meihei, i.e., Lipozyme/Chirazyme is presented. The **enzyme** was studed for the transesterification of (1R,3S)-rel-4-Cyclopentene-1,3-diol in various org. solvents by varying reaction parameters such as the nature of acyl donor, temp., **enzyme** quantity etc., to afford **optically** active (1S,3R)-4-cyclopentene-1,3-diol monoacetate of >98% enantiomeric excess in >60% yield.

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:632121 HCAPLUS
DOCUMENT NUMBER: 117:232121
TITLE: An efficient **enzymic** preparation of 4(S)-hydroxy-1(R)-acetoxy-cyclopent-2-ene by using new yeast isolate
AUTHOR(S): Kalkote, U. R.; **Joshi, R. R.**; **Joshi, R. A.**; Ravindranathan, T.; Bastawde, K. B.; Patil, S. G.; Gokhale, D. V.
CORPORATE SOURCE: Biochem. Sci. Div., NCIM, Pune, 411 008, India
SOURCE: Biotechnology Letters (1992), 14(9), 785-8
CODEN: BILED3; ISSN: 0141-5492
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The **enzymic** enantioselective hydrolysis of prochiral 1,4-cyclopent-2-ene diacetate was carried out using yeast and fungal cultures. Of all the cultures tested, the yeast sp. NCIM 3574 gave 4(S)-hydroxy-1(R)-acetoxycyclopent-2-ene in high **optical** yields (99% ee).

prep of claimed species

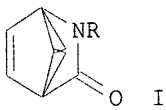
MARX 10/033,197

=> d ibib abs hitstr ind l36 1

L36 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:166750 HCAPLUS
DOCUMENT NUMBER: 130:208877
TITLE: Process for preparing enantiomerically enriched N-derivatized lactams
INVENTOR(S): Dawson, Michael John; Mahmoudian, Mahmoud; Wallis, Christopher John
PATENT ASSIGNEE(S): Glaxo Group Limited, UK
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9910519	A1	19990304	WO 1998-EP5291	19980820
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9897386	A1	19990316	AU 1998-97386	19980820
AU 738897	B2	20010927		
EP 1003903	A1	20000531	EP 1998-951307	19980820
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
BR 9810472	A	20000919	BR 1998-10472	19980820
JP 2001504354	T2	20010403	JP 1999-513916	19980820
MX 9911966	A	20000430	MX 1999-11966	19991217
NO 9906368	A	20000221	NO 1999-6368	19991221
US 6340587	B1	20020122	US 2000-446587	20000214
PRIORITY APPLN. INFO.:			GB 1997-17928 A	19970822
			WO 1998-EP5291 W	19980820

OTHER SOURCE(S): CASREACT 130:208877; MARPAT 130:208877
GI



I

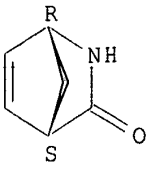
AB The present invention relates to a process for the prodn. of substantially enantiomerically pure intermediates of formula (I), wherein P is an activating and protecting group, from their racemates by treating the mixt. with an acylase **enzyme** derived from **Bacillus** sp.

IT **79200-56-9DP**, N-protected
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); **PREP (Preparation)**
(prepg. enantiomerically enriched N-derivatized lactams)

RN 79200-56-9 HCAPLUS

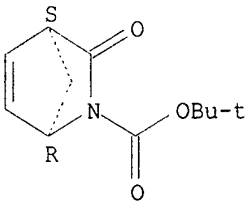
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

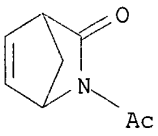


IT **151792-53-9P**
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); **RCT (Reactant)**; BIOL (Biological study); PREP (Preparation); **RACT (Reactant or reagent)**
(prepg. enantiomerically enriched N-derivatized lactams)
RN 151792-53-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 3-oxo-, 1,1-dimethylethyl ester, (1R,4S)- (9CI) (CA INDEX NAME)

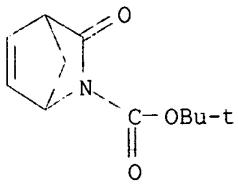
Absolute stereochemistry.



IT **162307-09-7 162427-15-8**
RL: BPR (Biological process); BSU (Biological study, unclassified); **RCT (Reactant)**; BIOL (Biological study); PROC (Process); **RACT (Reactant or reagent)**
(prepg. enantiomerically enriched N-derivatized lactams)
RN 162307-09-7 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-acetyl- (9CI) (CA INDEX NAME)



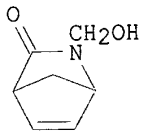
RN 162427-15-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 3-oxo-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



IC ICM C12P041-00
ICS C12P013-00; C07D209-52
CC 16-2 (Fermentation and Bioindustrial Chemistry)
ST lactam azabicycloheptenone resoln subtilisin
IT Resolution (separation)
(biol.; prepg. enantiomerically enriched N-derivatized lactams)
IT **79200-56-9DP**, N-protected
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); **PREP (Preparation)**
(prepg. enantiomerically enriched N-derivatized lactams)
IT 168960-18-7P 189098-29-1P
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepg. enantiomerically enriched N-derivatized lactams)
IT **151792-53-9P**
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); **RCT (Reactant)**; BIOL (Biological study); PREP (Preparation); **RACT (Reactant or reagent)**
(prepg. enantiomerically enriched N-derivatized lactams)
IT **162307-09-7 162427-15-8**
RL: BPR (Biological process); BSU (Biological study, unclassified); **RCT (Reactant)**; BIOL (Biological study); PROC (Process); **RACT (Reactant or reagent)**
(prepg. enantiomerically enriched N-derivatized lactams)
IT 9014-01-1, Savinase
RL: CAT (Catalyst use); USES (Uses)
(prepg. enantiomerically enriched N-derivatized lactams)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d ibib abs hitstr ind l36 2

L36 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1996:569065 HCAPLUS
DOCUMENT NUMBER: 125:300485
TITLE: Lipase-catalyzed resolution of 2-azabicyclo[2.2.1]hept-5-en-3-ones
AUTHOR(S): Nakano, Hiroto; Iwasa, Kazuto; Okuyama, Yuko; Hongo, Hiroshi
CORPORATE SOURCE: Tohoku College Pharmacy, Sendai, 981, Japan
SOURCE: Tetrahedron: Asymmetry (1996), 7(8), 2381-2386
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



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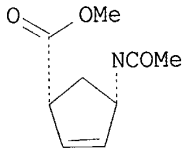


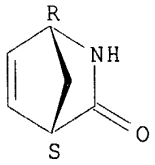
II

AB The lipase-catalyzed asym. resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones was reported. Non-racemic chiral 2-azabicyclo[2.2.1]hept-5-en-3-ones were obtained conveniently by lipase-catalyzed enantioselective transesterification or hydrolysis of 2-(hydroxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-one or 2-[(acetyloxy)methyl]-2-azabicyclo[2.2.1]hept-5-en-3-one. The resoln. of (.+-.)-2-(hydroxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-one (I) gave (1R)-2-[(acetyloxy)methyl]-2-azabicyclo[2.2.1]hept-5-en-3-one which was hydrolyzed to give (1R)-2-(hydroxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-one. Ring opening of the latter gave (-)-(1S-cis)-4-(acetylamino)-2-cyclopentene-1-carboxylic acid Me ester (II) which is an intermediate for carbovir.

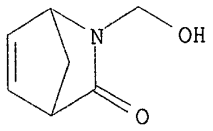
IT **79200-56-9P**, (-)-2-Azabicyclo[2.2.1]hept-5-en-3-one **157732-10-0P**, (.+-.)-2-(Hydroxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-one **157732-11-1P 157810-20-3P 157810-21-4P 183074-62-6P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); **PREP (Preparation)**; **RACT (Reactant or reagent)**
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)

RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

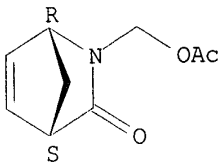


RN 157732-10-0 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)- (9CI) (CA INDEX NAME)



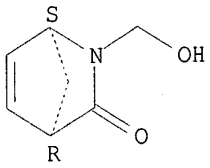
RN 157732-11-1 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-[(acetyloxy)methyl]-, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



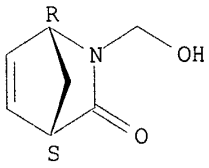
RN 157810-20-3 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)-, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

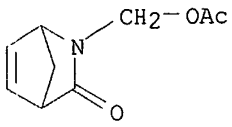


RN 157810-21-4 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)-, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

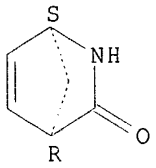


RN 183074-62-6 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-[(acetyloxy)methyl]- (9CI) (CA INDEX NAME)



IT **130931-83-8P**, (+)-2-Azabicyclo[2.2.1]hept-5-en-3-one
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

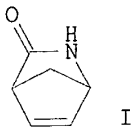
Absolute stereochemistry. Rotation (+).



CC 24-4 (Alicyclic Compounds)
Section cross-reference(s): 27
ST azabicycloheptenone lipase **enzymic** resoln;
cyclopentenecarboxylate amino prepn resoln; transesterification
azabicycloheptenone lipase **enzymic** resoln
IT Configuration
(abs., lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
IT Resolution
(**enzymic**, lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
IT 9001-62-1, Lipase
RL: CAT (Catalyst use); USES (Uses)
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
IT 49805-30-3, 2-Azabicyclo[2.2.1]hept-5-en-3-one
RL: RCT (Reactant); RACT (Reactant or reagent)
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
IT **79200-56-9P**, (-)-2-Azabicyclo[2.2.1]hept-5-en-3-one
157732-10-0P, (.+-.)-2-(Hydroxymethyl)-2-azabicyclo[2.2.1]hept-5-en-3-one **157732-11-1P 157810-20-3P**
157810-21-4P 183074-62-6P
RL: **RCT (Reactant)**; SPN (Synthetic preparation); **PREP (Preparation)**; **RACT (Reactant or reagent)**
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)
IT 118353-05-2DP, Carbovir, intermediates 127061-46-5P,
(1S-cis)-4-(Acetylamino)-2-cyclopentene-1-carboxylic acid methyl ester
130931-83-8P, (+)-2-Azabicyclo[2.2.1]hept-5-en-3-one
183074-63-7P
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(lipase-catalyzed resoln. of 2-azabicyclo[2.2.1]hept-5-en-3-ones)

=> d ibib abs hitstr ind l36 3

L36 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:579534 HCAPLUS
DOCUMENT NUMBER: 121:179534
TITLE: A facile lipase-catalyzed resolution of 2-azabicyclo[2.2.1]hept-5-en-3-ones
AUTHOR(S): Nakano, Hiroto; Okuyama, Yuko; Iwasa, Kazuto; Hongo, Hiroshi
CORPORATE SOURCE: Tohoku Coll. Pharm., Sendai, 981, Japan
SOURCE: Tetrahedron: Asymmetry (1994), 5(7), 1155-6
CODEN: TASYE3; ISSN: 0957-4166
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



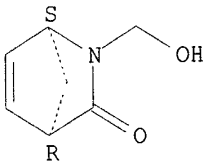
I

AB The lipase-catalyzed asym. synthesis of optically active 2-azabicyclo[2.2.1]hept-5-en-3-ones I is reported. Chiral 2-azabicyclo[2.2.1]hept-5-en-3-ones were obtained conveniently by lipase-catalyzed enantioselective transesterification of 2-hydroxymethyl-2-azabicyclo[2.2.1]hept-5-en-3-one.

IT **157810-20-3P 157810-21-4P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and dehydroxymethylation of)

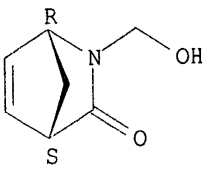
RN 157810-20-3 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)-, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



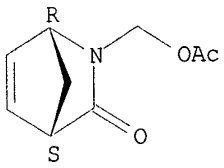
RN 157810-21-4 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-(hydroxymethyl)-, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



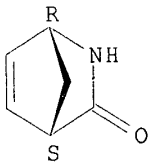
IT **157732-11-1P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and lipase-catalyzed deacetylation of)
RN 157732-11-1 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, 2-[(acetyloxy)methyl]-, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



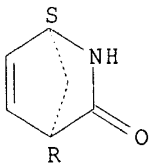
IT **79200-56-9P 130931-83-8P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of)
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



CC 28-13 (Heterocyclic Compounds (More Than One Hetero Atom))
ST lipase catalyzed resoln azabicycloheptenone
IT Resolution
(**enzymic**, lipase-catalyzed, of azabicycloheptenone)

IT 157732-10-0
RL: PROC (Process)
(lipase-catalyzed resoln. of)

IT **157810-20-3P 157810-21-4P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and dehydroxymethylation of)

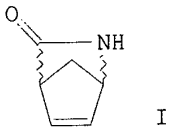
IT **157732-11-1P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and lipase-catalyzed deacetylation of)

IT **79200-56-9P 130931-83-8P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of)

IT 9001-62-1, Lipase
RL: RCT (Reactant); RACT (Reactant or reagent)
(resoln. by of azabicycloheptenone)

=> d ibib abs hitstr ind l36 4

L36 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:54848 HCAPLUS
DOCUMENT NUMBER: 120:54848
TITLE: Development of the biocatalytic resolution of 2-azabicyclo[2.2.1]hept-5-en-3-one as an entry to single-enantiomer carbocyclic nucleosides
AUTHOR(S): Taylor, Stephen J. C.; McCague, Raymond; Wisdom, Richard; Lee, Carol; Dickson, Karen; Ruecroft, Graham; O'Brien, Fergal; Littlechild, Jennifer; Bevan, Jennifer; et al.
CORPORATE SOURCE: Chiros Ltd., Cambridge, CB4 4WE, UK
SOURCE: Tetrahedron: Asymmetry (1993), 4(6), 1117-28
CODEN: TASYE3; ISSN: 0957-4166
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



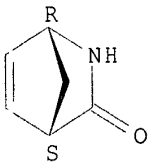
I

AB For the resoln. of the bicyclic lactam azabicycloheptenone I, efficient whole **cell** biocatalysts have been identified and from these, **enzymes** (lactamases) have been isolated. While the two **enzymes** obtained act on different enantiomers of the lactam, either can be used in scaleable processes to obtain synthons for carbocyclic nucleosides having the natural configuration.

IT **79200-56-9P 130931-83-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(prepn. and **enzymic** hydrolysis of)

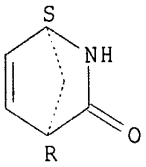
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



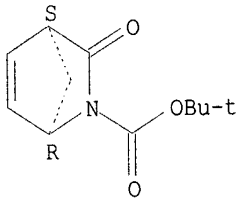
RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT **151792-53-9P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and reductive ring cleavage of)
RN 151792-53-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 3-oxo-, 1,1-dimethylethyl ester, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



CC 33-8 (Carbohydrates)
Section cross-reference(s): 7, 26
ST lactam azabicycloheptenone resoln synthon carbocyclic nucleoside; lactamase resoln bicyclic lactam azabicycloheptenone; Pseudomonas fluorescens hydrolysis lactam azabicycloheptenone; Aureobacterium hydrolysis lactam azabicycloheptenone
IT Synthons
(azabicycloheptenone, for carbocyclic nucleosides)
IT Aureobacterium
Pseudomonas fluorescens
(resoln. of azabicycloheptenone in presence of)
IT Resolution
(biochem., of azabicycloheptenone)
IT Nucleosides, preparation
RL: PREP (Preparation)
(carbocyclic, azabicycloheptenone as synthons for)
IT 61865-48-3
RL: PROC (Process)
(microbial resoln. of)
IT **79200-56-9P 130931-83-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(prepn. and **enzymic** hydrolysis of)
IT **151792-53-9P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(prepn. and reductive ring cleavage of)
IT 134003-04-6P 134234-04-1P 145527-33-9P 151907-79-8P 151907-80-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT 136522-35-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as synthon for carbocyclic nucleosides)

IT 24424-99-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, azabicycloheptenone)

IT 151907-78-7
RL: PROC (Process)
(resoln. of)

IT 120443-30-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthon for, prepn. of)

=> d ibib abs hitstr ind l39

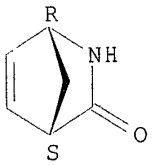
L39 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:372570 HCAPLUS
DOCUMENT NUMBER: 135:137223
TITLE: An efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery
AUTHOR(S): Smith, M. E. B.; Lloyd, M. C.; Derrien, N.; Lloyd, R. C.; Taylor, S. J. C.; Chaplin, D. A.; Casy, G.; McCague, R.
CORPORATE SOURCE: Unit 321, ChiroTech, Ascot Fine Chemicals, Cambridge, CB4 0WG, UK
SOURCE: Tetrahedron: Asymmetry (2001), 12(5), 703-705
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 135:137223

AB A route to all eight stereoisomers of 3-(tert-butoxycarbonylamino)-4-hydroxycyclopentanecarboxylic acid Me ester is presented. These products should prove to be valuable scaffolds in pharmaceutical discovery.

IT **79200-56-9P**
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); **PREP (Preparation)**; RACT (Reactant or reagent)
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)

RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



CC 24-4 (Alicyclic Compounds)
Section cross-reference(s): 63
ST tertbutoxycarbonylaminohydroxycyclopentanecarboxylic acid prepn **enzymic** resoln azabicycloheptenone pharmaceutical scaffold
IT Asymmetric synthesis and induction
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)
IT Resolution (separation)
(**enzymic**; of racemic azabicycloheptenone during the efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)
IT **79200-56-9P** 134003-04-6P
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); RCT (Reactant); BIOL (Biological study); **PREP (Preparation)**; RACT (Reactant or reagent)
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)
IT 138923-03-2P 168683-02-1P 251326-99-5P 321744-14-3P 321744-17-6P
321744-21-2P 321744-23-4P 329910-34-1P 329910-36-3P 329910-37-4P

329910-38-5P 329910-42-1P 352226-71-2P 352226-72-3P 352226-74-5P
352226-76-7P 352226-79-0P 352226-80-3P
RL: BPN (Biosynthetic preparation); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)

IT 262280-14-8P 321744-16-5P 321744-18-7P 321744-19-8P
RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)

IT 49805-30-3, 2-Azabicyclo[2.2.1]hept-5-en-3-one
RL: RCT (Reactant); RACT (Reactant or reagent)
(efficient route to all eight stereoisomers of a tri-functionalized cyclopentane scaffold for drug discovery)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

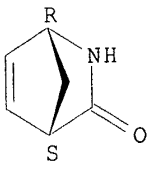
=> d ibib abs hitstr ind l39 2

L39 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:651912 HCAPLUS
DOCUMENT NUMBER: 132:92344
TITLE: Novel screening methods-the key to cloning commercially successful biocatalysts
AUTHOR(S): Taylor, Stephen J. C.; Brown, Rob C.; Keene, Phil A.; Taylor, Ian N.
CORPORATE SOURCE: Chirotech Technology Ltd., Cambridge, UK
SOURCE: Bioorganic & Medicinal Chemistry (1999), 7(10), 2163-2168
CODEN: BMECEP; ISSN: 0968-0896
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Providing sufficient biocatalyst to support the demands of multi tonne product supply can be problematical. This work describes how screening for and cloning a .gamma.-lactamase overcame biocatalyst supply issues and greatly improved the actual biocatalytic process. The isolation of an expressing .gamma.-lactamase clone from a gene library necessitated a combination of classical mol. biol. techniques together with innovative screening methods to identify a functional clone. Once isolated, the **enzyme** was characterized with regard to its process performance and proved to be active at 500 g/L substrate. Further development of the recombinant fermn. and downstream processing has resulted in the ability to produce sufficient biocatalyst from 1 500-L fermn. to resolve 5 metric tonnes of (.+-.)-lactam, while simplifying the process chem. greatly.

IT **79200-56-9P**, (-)-2-Azabicyclo[2.2.1]hept-5-en-3-one
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); **PREP (Preparation)**
(cloning com. successful .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



CC 16-4 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 3
ST Comamonas lactamase gene cloning azabicycloheptenone prodn
IT Gene, microbial
RL: PRP (Properties)
((+).gamma.-lactamase; Delftia acidovorans .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)
IT DNA sequences
Protein sequences
(Delftia acidovorans .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)
IT Delftia acidovorans
Genetic engineering

(cloning com. successful .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)

IT 204868-61-1, Lactamase, (+).gamma.- (Comamonas acidovorans)
RL: PRP (Properties)
(amino acid sequence; .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)

IT **79200-56-9P**, (-)-2-Azabicyclo[2.2.1]hept-5-en-3-one
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); **PREP (Preparation)**
(cloning com. successful .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)

IT 175449-77-1P
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); CAT (Catalyst use); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
(cloning com. successful .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)

IT 204868-60-0
RL: PRP (Properties)
(nucleotide sequence; .gamma.-lactamase producing (-)-2-azabicyclo[2.2.1]hept-5-en-3-one)

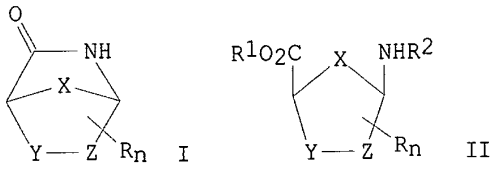
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d ibib abs hitstr ind 139 3

L39 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:449382 HCAPLUS
DOCUMENT NUMBER: 115:49382
TITLE: Chiral compounds
INVENTOR(S): Evans, Christopher Thomas; Roberts, Stanley Michael
PATENT ASSIGNEE(S): Enzymatix Ltd., UK
SOURCE: Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 424064	A1	19910424	EP 1990-311253	19901015
EP 424064	B1	19950208		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 03218380	A2	19910925	JP 1990-277589	19901015
JP 2648013	B2	19970827		
ES 2067693	T3	19950401	ES 1990-311253	19901015
US 5284769	A	19940208	US 1993-63392	19930520
US 5498625	A	19960312	US 1994-336754	19941108
US 5688933	A	19971118	US 1995-461973	19950605
PRIORITY APPLN. INFO.:			GB 1989-23278	19891016
			GB 1989-24209	19891027
			GB 1990-995	19900117
			US 1990-596306	19901015
			US 1993-35236	19930322
			US 1994-336754	19941108

OTHER SOURCE(S): CASREACT 115:49382; MARPAT 115:49382
GI

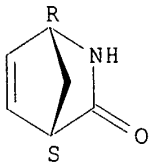


AB Lactamases react with .gamma.-lactams I (X = CH2, CH2CH2, Q, CH2Q, QCH2, Q = heteroatom (including NH), Y, Z = CH2, heteroatom (including NH); YZ = CH:CH, CH:N, N:CH; Rn = H or substituent) to give single enantiomer of the lactam and the corresponding ring opened product II (R1 = H, alkyl; R2 = H, blocking group). Thus, (.+-.)-2-azabicyclo[2.2.1]hept-5-en-3-one was treated with ENZA-1 **cell** paste (prepn. given) in phosphate buffer to give (+)-lactam and the corresponding (-)-amino acid.

IT **79200-56-9P 130931-83-8P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by reaction of racemic azabicycloheptenone with lactamase)

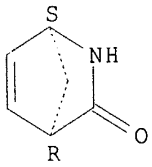
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

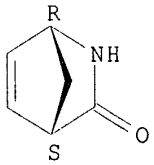


IC ICM C07D209-52
ICS C07C233-52; C12N001-00; C12N009-86; C12P041-00
CC 27-6 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 9, 28, 34
ST lactamase reaction lactam; azabicycloheptenone resoln cleavage **enzymic**
IT Resolution
(**enzymic**, of azabicycloheptenone, by lactamase)
IT Ring cleavage
(**enzymic**, of lactams, by lactamase)
IT Lactams
RL: RCT (Reactant); RACT (Reactant or reagent)
(.gamma.-, resoln. and ring cleavage of, by lactamase)
IT 61865-49-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT **79200-56-9P 130931-83-8P** 134003-04-6P
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by reaction of racemic azabicycloheptenone with lactamase)
IT 61865-48-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with lactamase, lactam enantiomer and amino acid enantiomer from)
IT 9073-60-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(Rhodococcus, reaction of, with racemic .gamma.-lactams, single enantiomer and amino acid deriv. from)

=> d ibib abs hitstr ind l39 4

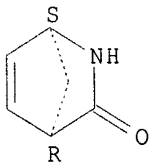
L39 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:408466 HCAPLUS
DOCUMENT NUMBER: 115:8466
TITLE: Whole **cell** catalyzed resolution of a racemic bicyclic lactam: a novel approach to the production of chiral carbocyclic nucleosides
AUTHOR(S): Taylor, Steve; Sutherland, Alan; Lee, Carol; Wisdom, Richard; Evans, Christopher; Roberts, Stanley; Thomas, Steve
CORPORATE SOURCE: Chem. Dep., Exeter Univ., Exeter, UK
SOURCE: Oppor. Biotransform., [Pap. Conf.] (1990), 105-18. Editor(s): Copping, Leonard G. Elsevier: London, UK. CODEN: 56XOAQ
DOCUMENT TYPE: Conference
LANGUAGE: English
AB A process has been defined for the resoln. of the racemic lactam (.+-.)-2-azabicyclo[2.2.1]hept-5-en-3-one, a versatile intermediate in the synthesis of novel carbocyclic nucleosides. Both optical forms of the lactam have been obtained in very high optical purity (>98% e.e.) in a rapid, facile scaleable biotransformation process using whole **cell** catalysts.
IT **79200-56-9P 130931-83-8P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of)
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



CC 27-10 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 9, 33
ST lactam resoln whole **cell** catalyst; bicyclic lactam racemic resoln biocatalyst; carboxylic nucleoside chiral approach
IT Resolution
(of racemic lactam in presence of whole **cell**)
IT Lactams

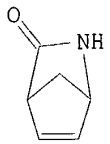
RL: PROC (Process)
(bicyclic, whole **cell** catalyzed resoln. of)

IT **79200-56-9P 130931-83-8P** 134003-04-6P 134234-04-1P
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of)

IT 61865-48-3
RL: PROC (Process)
(whole **cell** catalyzed resoln. of)

=> d ibib abs hitstr ind l39 5

L39 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:7049 HCAPLUS
DOCUMENT NUMBER: 114:7049
TITLE: **Chemoenzymic** synthesis of (-)-carbovir utilizing a whole **cell** catalyzed resolution of 2-azabicyclo[2.2.1]hept-5-en-3-one
AUTHOR(S): Taylor, Steven J. C.; Sutherland, Alan G.; Lee, Carol; Wisdom, Richard; Thomas, Steve; Roberts, Stanley M.; Evans, Christopher
CORPORATE SOURCE: Enzymatix Ltd., Cambridge, CB4 4WE, UK
SOURCE: Journal of the Chemical Society, Chemical Communications (1990), (16), 1120-1
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 114:7049
GI

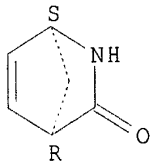


I

AB The resoln. of (.+-.)-2-azabicyclo[2.2.1]hept-5-en-3-one (I), a versatile intermediate in the synthesis of carbocyclic nucleosides, is described. Both optical forms of the lactam I have been obtained in very high optical purity (>98% enantiomeric excess) in rapid, facile, large-scale biotransformation processes using whole **cell** catalysts, and the levorotatory enantiomer has been converted into (-)-carbovir.

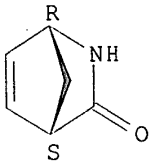
IT **130931-83-8P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by resoln. of racemate)
RN 130931-83-8 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1S,4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT **79200-56-9P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by resoln. of racemate, in synthesis of carbocyclic nucleoside)
RN 79200-56-9 HCAPLUS
CN 2-Azabicyclo[2.2.1]hept-5-en-3-one, (1R,4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



CC 33-9 (Carbohydrates)
Section cross-reference(s): 9

ST azabicycloheptenone racemic resoln **enzymic**; carbovir **chemoenzymic** prepn; carbocyclic nucleoside

IT Pseudomonas solanacearum
Rhodococcus equi
(resoln. by, of racemic azabicycloheptenone)

IT Resolution
(**enzymic**, of azabicycloheptenone; whole **cell** catalysts for)

IT 61865-48-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(**enzymic** resoln. of, whole **cell**-catalyzed)

IT 120443-30-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT **130931-83-8P** 130931-84-9P 130931-85-0P
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by resoln. of racemate)

IT **79200-56-9P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(prepn. of, by resoln. of racemate, in synthesis of carbocyclic nucleoside)

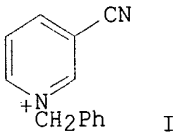
IT 130931-86-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, in synthesis of carbocyclic nucleoside)

Inv. search not much related to instant invention

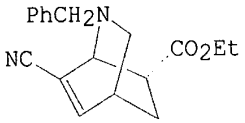
MARX 10/033,197

=> d ibib abs 16

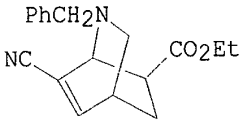
L6 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1984:630313 HCAPLUS
DOCUMENT NUMBER: 101:230313
TITLE: Diels-Alder adducts of N-benzyl-1,2- and 1,6-dihydro-3-cyanopyridine with ethyl acrylate
AUTHOR(S): **Joshi, R. A.**; Ponkshe, N. K.; Ravindranathan, T.
CORPORATE SOURCE: Natl. Chem. Lab., Poona City, 411 008, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1984), 23B(3), 263-4
CODEN: IJSBDB; ISSN: 0376-4699
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 101:230313
GI



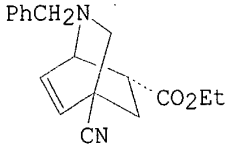
I



II



III



IV

AB Diels-Alder reaction of dihydropyridines from the pyridinium salt (I) with Et acrylate gives higher yields of adduct II than those reported. In addn. the new adducts III and IV, arising from 1,6-dihydro- and 1,2-dihydro-pyridine derivs. resp. were isolated. The structures have been confirmed by NMR spectroscopy.

Inv search

MARX 10/033,197

=> d ibib abs l8 1-11

L8 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:350395 HCAPLUS
DOCUMENT NUMBER: 137:333627
TITLE: Fully automated sample preparation for pathogen detection performed in a microfluidic cassette
AUTHOR(S): Taylor, M. T.; Belgrader, P.; **Joshi, R.**; Kintz, G. A.; Northrup, M. A.
CORPORATE SOURCE: Cepheid, Sunnyvale, CA, USA
SOURCE: Micro Total Analysis Systems 2001, Proceedings .mu.TAS 2001 Symposium, 5th, Monterey, CA, United States, Oct. 21-25, 2001 (2001), 670-672. Editor(s): Ramsey, J. Michael; Berg, Albert van den. Kluwer Academic Publishers: Dordrecht, Neth.
CODEN: 69COT6; ISBN: 1-4020-0148-7
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Mol. testing for pathogens based on nucleic acid identification requires several sample prepn. steps to release and isolate DNA for polymerase chain reaction (PCR) anal. Here the authors present the development of a fully automated pathogen detection system that integrates all sample prepn. and PCR functions into a miniature microfluidic cassette. Sample prepn. steps, including bacterial spore concn. by filtering, washing to remove PCR inhibitors, ultrasonic lysis, and pumping of elution contg. DNA, are performed automatically in a microfluidic cassette.
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:494595 HCAPLUS
DOCUMENT NUMBER: 135:192134
TITLE: Neighboring cysteine residues in human fucosyltransferase VII are engaged in disulfide bridges, forming small loop structures
AUTHOR(S): De Vries, Theodora; Yen, Ten-Yang; **Joshi, Rajesh K.**; Storm, Janet; Van den Eijnden, Dirk H.; Knegtel, Ronald M. A.; Bunschoten, Hans; Joziasse, David H.; Macher, Bruce A.
CORPORATE SOURCE: Department of Medical Chemistry, Vrije Universiteit Amsterdam, Amsterdam, 1081 BT, Neth.
SOURCE: Glycobiology (2001), 11(5), 423-432
CODEN: GLYCE3; ISSN: 0959-6658
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Among .alpha.3-fucosyltransferases (.alpha.3-FucTs) from most species, four cysteine residues appear to be highly conserved. Two of these cysteines are located at the N-terminus and two at the C-terminus of the catalytic domain. FucT VII possesses two addnl. cysteines in close proximity to each other located in the middle of the catalytic domain. We identified the disulfide bridges in a recombinant, sol. form of human FucT VII. Potential free cysteines were modified with a biotinylated alkylating reagent, disulfide bonds were reduced and alkylated with iodoacetamide, and the protein was digested with either trypsin or chymotrypsin, before characterization by high-performance liq. chromatog./electrospray ionization mass spectrometry. More than 98% of the amino acid sequence for the truncated enzyme (beginning at amino acid 53) was verified. Mass spectrometry anal. also demonstrated that both potential N-linked sites are occupied. All six cysteines in the FucT VII

sequence were shown to be disulfide-linked. The pairing of the cysteines was detd. by proteolytic cleavage of nonreduced protein and subsequent anal. by mass spectrometry. The results demonstrated that Cys68-Cys76, Cys211-Cys214, and Cys318-Cys321 are disulfide-linked. We have used this information, together with a method of fold recognition and homol. modeling, using the (.alpha./.beta.)8-barrel fold of **Escherichia** coli dihydrodipicolinate synthase as a template to propose a model for FucT VII.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:295911 HCAPLUS
DOCUMENT NUMBER: 135:104351
TITLE: Positron emission tomography-based imaging of transgene expression mediated by replication-conditional, oncolytic herpes simplex virus type 1 mutant vectors in vivo
AUTHOR(S): Jacobs, Andreas; Tjuvajev, Juri G.; Dubrovin, Michael; Akhurst, Timothy; Balatoni, Julius; Beattie, Bradley; **Joshi, Revathi**; Finn, Ronald; Larson, Steven M.; Herrlinger, Ulrich; Pechan, Peter A.; Chiocca, E. Antonio; Breakefield, Xandra O.; Blasberg, Ronald G.
CORPORATE SOURCE: Department of Neurology, Memorial Sloan-Kettering Cancer Center, New York, NY, 10021, USA
SOURCE: Cancer Research (2001), 61(7), 2983-2995
CODEN: CNREA8; ISSN: 0008-5472
PUBLISHER: American Association for Cancer Research
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To evaluate the efficiency of gene delivery in gene therapy strategies for malignant brain tumors, it is important to det. the distribution and magnitude of transgene expression in target tumor cells over time. Here, we assess the time- and vector dose-dependent kinetics of recombinant herpes simplex virus (HSV)-1 vector-mediated gene expression and vector replication in culture and in vivo by a recently developed radiotracer method for noninvasive imaging of gene expression. The kinetics of viral infection of rat 9L gliosarcoma cells by the replication-conditional HSV-1 vector, hrR3, was studied by measuring the accumulation rate of 2-[14C]-fluoro-5-iodo-1-.beta.-D-arabinofuranosyl-uracil (FIAU), a selective substrate for viral thymidine kinase (TK). The level of viral TK activity in 9L cells was monitored by the radiotracer assay to assess various vector doses and infection times, allowing vector replication and spread. In parallel, viral yields and levels of **Escherichia** coli .beta.-galactosidase activity were assessed quant. To study vector replication, spread and HSV-1-tk and lacZ gene coexpression in vivo, first- or second-generation recombinant HSV-1 vectors (hrR3 or MGH-1) were injected into s.c. growing rat 9L or human U87.DELTA.EGFR gliomas in nude rats at various times (8 h to 8 days) and at various vector doses [1 .times. 106 to 2 .times. 109 plaque-forming units (PFUs)] prior to imaging. For noninvasive assessment of HSV-1-tk gene expression (124I-labeled FIAU % dose/g), 0.15 mCi of 124I-labeled FIAU was injected i.v. 8 h after the last vector administration, and FIAU positron emission tomog. (PET) was performed 48 h later. For the assessment of HSV-1-tk and lacZ gene coexpression, 0.2 mCi of 131I-labeled FIAU was injected i.v. 24 h after the last vector administration. Forty-eight h later, animals were killed, and tumors were dissected for quant. autoradiog. and histochem. assessment of regional distribution of radioactivity (TK expression measured as 131I-labeled FIAU % dose/g) and coexpressed lacZ gene activity. The rates of FIAU accumulation (Ki) in hrR3-infected 9L cells

in culture, which reflect the levels of HSV-1-tk gene expression, ranged between 0.12 and 3.4 mL/g/min. They increased in a vector dose- and infection time-dependent manner and correlated with the virus yield (PFUs/mL), where the PFUs:Ki ratios remained relatively const. over time. Moreover, a linear relationship was obsd. between lacZ gene expression and FIAU accumulation 5-40 h after infection of 9L cells with a multiplicity of infection of 1.5. At later times (>52 h postinjection), high vector doses (multiplicity of infection, 1.5) led to a decrease of FIAU accumulation rates, viral yield, and cell pellet wts., indicating vector-mediated cell toxicity. Various levels of HSV-1-tk gene expression could be assessed by FIAU-PET after in vivo infection of s.c. tumors. The levels of FIAU accumulation were comparatively low (.apprx. ranging from 0.00013 to 0.003% injected dose/g) and were spatially localized; this may reflect viral-induced cytolysis of infected tumor cells and limited lateral spread of the virus. Image coregistration of tumor histol., HSV-1-tk related radioactivity (assessed by autoradiog.), and lacZ gene expression (assessed by .beta.-galactosidase staining) demonstrated a characteristic pattern of gene expression around the injection sites. A rim of lacZ gene expression immediately adjacent to necrotic tumor areas was obsd., and this zone was surrounded by a narrow band of HSV-1-tk-related radioactivity, primarily in viable-appearing tumor tissue. These results demonstrate that recombinant HSV-1 vector-mediated HSV-1-tk gene expression can be monitored noninvasively by PET, where the areas of FIAU-derived radioactivity identify the viable portion of infected tumor tissue that retains FIAU accumulation ability, and that the accumulation rate of FIAU in culture, Ki, reflects the no. of HSV-1 viral particles in the infected tumor cell population [4.1 .+-. 0.6 .times. 106 PFUs/Ki unit (PFUs ml/min/g)]. Moreover, time-dependent and spatial relationships of HSV-1-tk and lacZ gene coexpression in culture and in vivo indicate the potential for indirect in vivo imaging of therapeutic gene expression in tumor tissue infected with any recombinant HSV-1 vector where a therapeutic gene is substituted for the lacZ gene.

REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:299501 HCAPLUS
DOCUMENT NUMBER: 128:286110
TITLE: Comparison of a novel ColiPlate kit and the standard membrane filter technique for enumerating total coliforms and **Escherichia** coli bacteria in water
AUTHOR(S): Lifshitz, Ran; **Joshi, Renu**
CORPORATE SOURCE: Environmental Biodetection Products Inc., Brampton, ON, Can.
SOURCE: Environmental Toxicology and Water Quality (1998), 13(2), 157-164
CODEN: ETWQEZ; ISSN: 1053-4725
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The ColiPlate (CP) kit was evaluated comparatively with the std. membrane filter (MF) technique for enumerating total coliforms and **Escherichia** coli in water. In testing natural water samples, good correlations were obsd. for enumerating total coliforms (R2 = 0.84) and E. coli (R2 = 0.95). However, counts of E. coli population d. estd. by CP were 47% higher than counts estd. by MF. With the water samples spiked with culture-grown E. coli cells, the correlation between the methods was strong for both total coliforms (R2 = 0.95) and for E. coli (R2 = 0.94). E. coli densities were estd. to be 20% higher using CP compared with MF.

Samples spiked with rehydrated freeze-dried E. coli cells (with high portion of injured or weakened cells) showed a strong correlation between the 2 methods (R2 = 0.93, for either total coliforms or E. coli). However, estd. total conditions and E. coli densities were higher by CP than MF counts (38 and 168%, resp.). The CP test is therefore considered a more reliable method than the traditional MF for enumerating E. coli in samples with high levels of injured or weakened cells.

L8 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:915356 HCAPLUS
DOCUMENT NUMBER: 124:4201
TITLE: Comparative evaluation of modified m-FC and m-TEC media for membrane filter enumeration of **Escherichia** coli in water
AUTHOR(S): Ciebin, B. W.; Brodsky, M. H.; Eddington, R.; Horsnell, G.; Choney, A.; Palmateer, G.; Ley, A.; **Joshi, R.**; Shears, G.
CORPORATE SOURCE: Ontario Ministry Health, Water Pollution Control Division, Gloucester, ON, Can.
SOURCE: Applied and Environmental Microbiology (1995), 61(11), 3940-2
CODEN: AEMIDF; ISSN: 0099-2240
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two media used to detect fecal coliforms in water by membrane filtration, m-FC and m-TEC, were modified and supplemented with the chromogenic substrate 5-bromo-6-chloro-3-indoyl-.beta.-D-glucuronide (BCIG) and were compared for quant. recovery of **Escherichia** coli. Student's t test of data from 181 water samples of sewage, rivers, lakes, and wells did not demonstrate any statistically significant differences (P = 0.05) in the enumeration of E. coli with these media. Target colonies were confirmed to be E. coli at rates of 98.6 and 97.3% by using FC-BCIG and TEC-BCIG media, resp. Glucuronidase-neg. isolates of E. coli were encountered at the same frequency (6.0%) on both media. This collaborative study demonstrated that either modified basal medium could be used successfully for detection of E. coli in various nontreated waters within 24 h.

L8 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1995:790549 HCAPLUS
DOCUMENT NUMBER: 123:193141
TITLE: Bioemulsifier production by **Bacillus** stearothermophilus VR-8 isolate
AUTHOR(S): **Gurjar, M.**; Khire, J.M.; Khan, M.I.
CORPORATE SOURCE: Division of Biochemical Sciences, National Chemical Laboratory, Pune, 411 008, India
SOURCE: Letters in Applied Microbiology (1995), 21(2), 83-6
CODEN: LAMIE7; ISSN: 0266-8254
PUBLISHER: Blackwell
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Bacillus** stearothermophilus produced an extracellular bioemulsifier during growth in a medium contg. 4% crude oil. Over the temp. range of 45.degree. to 70.degree.C, max. recovery (0.6 g L-1) occurred at 50.degree.C. The emulsifier had its greatest activity on benzene, among the hydrocarbons tested. Acetone pptd., dialyzed emulsifier contained 46% protein, 16% carbohydrate and 10% lipid. The emulsification activity was stable over a broad range of temp. (50-80.degree.C), pH (2-8) and salt concn. (5% NaCl, 5% CaCl2 and 1%

MgCl2). Thus, this emulsifier was found to be better than liposan (showing emulsifying activity between pH 2-5 and stable up to 70.degree.C) in terms of pH and temp. stability. Addnl., it was also salt tolerant, suggesting its potential use in crude oil tank clean-up and enhanced oil recovery.

L8 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:6861 HCAPLUS
DOCUMENT NUMBER: 120:6861
TITLE: Studies of operational variables in batch mode for genetically engineered **Escherichia** coli cells containing penicillin acylase
AUTHOR(S): Bhattacharya, S.; Gupta, V. S.; **Prabhune, A. A.**; SivaRaman, H.; Debnath, M.; Ranjekar, P. K.
CORPORATE SOURCE: Biochem. Sci. Div., Natl. Chem. Lab., Pune, India
SOURCE: Enzyme and Microbial Technology (1993), 15(12), 1070-3
CODEN: EMTED2; ISSN: 0141-0229
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A recombinant **Escherichia** coli was constructed by cloning the penicillin acylase gene from E. coli ATCC 11105. The cloning was carried out using a recombinant plasmid pUSAD2 harboring the pac gene. The recombinant E. coli DH 5 cells were used as a biocatalyst and were studied in a batch reactor for detn. of optimum value for some of the process parameters, such as effect of pH, temp., substrate concn., kLa and effect of carbon and nitrogen source on penicillin acylase prodn. These values were then compared with the values obtained with the std. parent strain. Whereas the cloned pac gene was found to produce higher levels of penicillin acylase constitutively, the process parameters remained about the same for both the parent and the recombinant.

L8 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:82120 HCAPLUS
DOCUMENT NUMBER: 116:82120
TITLE: Immobilization of permeabilized **Escherichia** coli cells with penicillin acylase activity
AUTHOR(S): **Prabhune, A. A.**; Rao, B. S.; Pundle, A. V.; SivaRaman, H.
CORPORATE SOURCE: Biochem. Sci. Div., Natl. Chem. Lab., Pune, 411 008, India
SOURCE: Enzyme and Microbial Technology (1992), 14(2), 161-3
CODEN: EMTED2; ISSN: 0141-0229
DOCUMENT TYPE: Journal
LANGUAGE: English
AB E. coli cells with penicillin acylase activity were sequentially treated at pH 7.8 with aq. solns. of N-cetyl-N,N,N-trimethylammonium bromide and glutaraldehyde and then immobilized in porous polyacrylamide beads. The immobilized whole cells showed enhanced hydrolysis rates in the conversion of benzylpenicillin to 6-aminopenicillanic acid (6-APA) compared to untreated cells immobilized and used under identical conditions. The immobilized system showed no apparent loss in enzyme activity when used repeatedly over 90 cycles for 6-APA prodn. from 4% benzylpenicillin.

L8 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:79382 HCAPLUS
DOCUMENT NUMBER: 116:79382
TITLE: Immobilization of penicillin acylase in porous beads of polyacrylamide gel
AUTHOR(S): **Prabhune, Asmita**; SivaRaman, Hephzibah
CORPORATE SOURCE: Div. Biochem. Sci., Natl. Chem. Lab., Pune, 411008,

India
SOURCE: Applied Biochemistry and Biotechnology (1991), 30(3), 265-72
CODEN: ABIBDL; ISSN: 0273-2289
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A procedure is described for the immobilization of penicillin acylase from **Escherichia** coli within uniformly spherical, porous polyacrylamide gel beads. Aq. solns. of the enzyme and Na alginate and of acrylamide monomer, N,N'-methylene-bis-acrylamide, N,N,N',N'-tetramethylethylenediamine, and Na alginate were cooled sep., mixed, and dropped immediately into ice-cold, buffered Na formate soln., pH 8.5, to give Ca alginate-coated beads. The beads were left for 30-60 min in the cold Ca formate soln. for polyacrylamide gel formation. The beads were then treated with a soln. of glutaraldehyde and the Ca alginate subsequently leached out with a soln. of K phosphate. The modification of the native enzyme with glutaraldehyde resulted in a slight enhancement in the rate of hydrolysis of benzylpenicillin at pH 7.8 and 0.05M substrate concn. The enzyme entrapped in porous polyacrylamide gel beads showed no measurable diffusional limitation in stirred reactors, catalyzing the hydrolysis of the substrate at a rate comparable to that of the glutaraldehyde-modified native enzyme. The immobilized enzyme prepn. was used in batch mode over 90 cycles without any apparent loss in hydrolytic activity.

L8 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1991:77680 HCAPLUS
DOCUMENT NUMBER: 114:77680
TITLE: Evidence for involvement of arginyl residue at the catalytic site of penicillin acylase from **Escherichia** coli
AUTHOR(S): **Prabhune, Asmitha A.**; Sivaraman, Hephzibah
CORPORATE SOURCE: Div. Biochem. Sci., Natl. Chem. Lab., Pune, 411008, India
SOURCE: Biochemical and Biophysical Research Communications (1990), 173(1), 317-22
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Incubation of penicillin acylase from E. coli with phenylglyoxal or 2,3-butanedione results in enzyme inactivation. Both benzylpenicillin and phenylacetate protect the enzyme against the inactivation, indicating the presence of arginine at or near the catalytic site. The reactions follow pseudo-first order kinetics and the inactivation kinetics indicate the presence of a single essential arginine moiety.

L8 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1989:91090 HCAPLUS
DOCUMENT NUMBER: 110:91090
TITLE: Ionic conditions for the cleavage of the tRNA-like structure of turnip yellow mosaic virus by the catalytic RNA of RNase P
AUTHOR(S): Green, Christopher J.; Vold, Barbara S.; Morch, Marie D.; **Joshi, Rajiv L.**; Haenni, Anne Lise
CORPORATE SOURCE: SRI Int., Menlo Park, CA, 94025, USA
SOURCE: Journal of Biological Chemistry (1988), 263(24), 11617-20
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The 3'-end of the RNA genome of turnip yellow mosaic virus can form a pseudoknotted tRNA-like structure than can be recognized by several tRNA-specific enzymes. The catalytic M1 RNA component of **Bacillus** subtilis RNase P was found to cleave this structure in unusually low ionic strength buffers at a site analogous to the 5'-end of an aminoacyl stem of a tRNA. Most other precursors can only be processed under low ionic strength conditions if the RNase P holoenzyme is used; processing by the catalytic RNA component alone requires a higher ionic strength buffer. The cleavage of the turnip yellow mosaic virus tRNA-like structure demonstrates the importance of the substrate in detg. the optimal buffer conditions for this reaction and also shows that high ionic strength buffers are not always necessary for cleavage by the catalytic RNA.